

Homework for Day 10, Session 1

Find the specific solution to each integral.

1. $F(x) = \int 12x^2 - 6x + 1 dx$ $F(1) = 5$ 2. $I(x) = \int 12x - 6e^x dx$ $I(0) = 5$

3. $G(x) = \int 9x^2 + x - 8 dx$ $G(-1) = 1$ 4. $J(u) = \int 9u^2 - \frac{1}{u} du$ $J(1) = 3$

5. $H(t) = \int 4t^{\frac{1}{2}} dt$ $H(4) = 21$ 6. $K(n) = \int 3 \cos n + 9 \sin n dn$ $K(\pi) = 12$
n is in radians

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For the problems on this page, find the specific solution for $x(t)$. This will require the use of the following formulas:

$$v = \int a dt$$

$$x = \int v dt$$

Remember to solve for c after each integration.

7. $a(t) = 4t - 1$ $v(2) = -2$ $x(1) = 3$

8. $a(t) = 6 \sin t$ $v(0) = 6$ $x(0) = 0$
t is in radians

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Solve the definite integrals.

9. $\int_{-1}^3 -x^3 + 3x^2 + 1 dx$

10. $\int_1^3 2x^2 - 12x^2 + 13 dx$

11. $\int_{-1}^0 (x^5 - 4x^3 + 4x + 4) dx$

12. $\int_{-3}^0 4x^{\frac{1}{3}} dx$

13. $\int_1^3 \frac{5}{f} df$

14. $\int_0^1 200e^m dm$

15. $\int_0^{90} -2 \cos(t) dt$ t is in degrees